

# LAB - 3

1. ALTER TABLE employee ADD CONSTRAINT pk\_employee PRIMARY KEY (ssn);  
ALTER TABLE department ADD CONSTRAINT pk\_department PRIMARY KEY (dnumber);  
ALTER TABLE dept\_locations ADD CONSTRAINT pk\_dept\_locations PRIMARY KEY (dnumber,dlocation);  
ALTER TABLE project ADD CONSTRAINT pk\_project PRIMARY KEY (pnumber);  
ALTER TABLE works\_on ADD CONSTRAINT pk\_works\_on PRIMARY KEY (essn,pno);  
ALTER TABLE dependent ADD CONSTRAINT pk\_dependent PRIMARY KEY (essn,dependent\_name);  
  
ALTER TABLE employee ADD CONSTRAINT fk1\_employee FOREIGN KEY (super\_ssn) REFERENCES employee(ssn),ADD CONSTRAINT fk2\_employee FOREIGN KEY (dno) REFERENCES department(dnumber);  
ALTER TABLE department ADD CONSTRAINT fk1\_department FOREIGN KEY (mgr\_ssn) REFERENCES employee(ssn);  
ALTER TABLE dept\_locations ADD CONSTRAINT fk1\_dept\_locations FOREIGN KEY (dnumber) REFERENCES department(dnumber);  
ALTER TABLE project ADD CONSTRAINT fk1\_project FOREIGN KEY (dnum) REFERENCES department(dnumber);  
ALTER TABLE works\_on ADD CONSTRAINT fk1\_works\_on FOREIGN KEY (essn) REFERENCES employee(ssn),ADD CONSTRAINT fk2\_works\_on FOREIGN KEY (pno) REFERENCES project(pnumber);

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ALTER TABLE dependent ADD CONSTRAINT fk1_dependent FOREIGN  
KEY (essn) REFERENCES employee(ssn);
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2. 

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SELECT * FROM employee WHERE super_ssn IS NULL;
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3. 

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SELECT DISTINCT essn FROM works_on WHERE (pno, hours) IN (SELECT  
pno, hours FROM works_on WHERE essn='123456789');
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4. 

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SELECT E.fname, E.minit, E.lname FROM employee E WHERE E.ssn IN  
(SELECT essn FROM dependent WHERE E.fname=dependent_name AND  
E.sex=sex);
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5. 

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SELECT fname, minit, lname FROM employee WHERE ssn NOT IN (SELECT  
essn FROM dependent);
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6. 

```
SELECT fname, minit, lname FROM employee WHERE ssn IN (SELECT  
mgr_ssn FROM department WHERE ssn IN (SELECT essn FROM dependent  
WHERE ssn=essn));
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7. 

```
SELECT ssn FROM employee WHERE ssn IN (SELECT essn FROM works_on  
WHERE ((pno=1) OR (pno=2) OR (pno=3)));
```
8. 

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SELECT SUM(salary), MAX(salary), MIN(salary), AVG(salary) FROM  
employee;
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9. 

```
SELECT SUM(salary), MAX(salary), MIN(salary), AVG(salary) FROM employee  
E, department D WHERE D.dnumber=E.dno AND dname='Research';
```
10. 

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SELECT fname, minit, lname FROM employee WHERE (SELECT COUNT(*)  
FROM dependent WHERE ssn=essn)>=2;
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11. SELECT dno,COUNT(\*),AVG(salary) FROM employee GROUP BY dno;
12. SELECT pnumber,pname,COUNT(\*) FROM project,works\_on WHERE  
pnumber=pno GROUP BY pnumber;
13. SELECT pnumber,pname,COUNT(\*) FROM project,works\_on WHERE  
pnumber=pno GROUP BY pnumber HAVING COUNT(\*)>2;
14. SELECT pnumber,pname,COUNT(\*) FROM project,works\_on,employee  
WHERE ((pnumber=pno) & (essn=ssn) & (dno=5)) GROUP BY pnumber;
15. SELECT dnumber,COUNT(\*) FROM employee,department WHERE  
((dnumber=dno) & (salary>40000)) GROUP BY dnumber HAVING  
COUNT(\*)>5;
16. SELECT dname,COUNT(\*) FROM employee,department WHERE  
dnumber=dno GROUP BY dname HAVING AVG(salary)>30000;
17. SELECT dnumber,COUNT(\*) FROM employee,department WHERE  
((dnumber=dno) & (sex='M')) GROUP BY dnumber;
18. SELECT fname,minit,lname FROM employee WHERE dno=(SELECT dno  
FROM employee WHERE salary=(SELECT MAX(salary) FROM employee));
19. SELECT fname,minit,lname FROM employee WHERE super\_ssn IN (SELECT  
ssn FROM employee WHERE super\_ssn='888665555');
20. SELECT fname,minit,lname FROM employee WHERE salary>=((SELECT  
MIN(salary) FROM employee)+10000);

21. SELECT ssn FROM employee WHERE salary<(SELECT MAX(salary) FROM employee) ORDER BY salary DESC LIMIT 1;
22. SELECT \*FROM employee ORDER BY salary DESC LIMIT 3;
23. SELECT dno,MAX(salary) FROM employee GROUP BY dno;
24. SELECT dnumber,dname FROM department WHERE dnumber NOT IN (SELECT dno FROM employee);
25. SELECT CONCAT(fname," ",minit," ",lname) FROM employee;
26. SELECT fname,minit,lname FROM employee WHERE fname LIKE "\_\_\_\_\_";
27. SELECT AVG(salary) FROM employee WHERE sex='F';
28. SELECT fname,minit,lname FROM employee WHERE NOT EXISTS (SELECT \* FROM works\_on A WHERE A.pno IN (SELECT pnumber FROM project WHERE dnum=5) AND NOT EXISTS (SELECT \* FROM works\_on B WHERE B.essn=ssn AND B.pno=A.pno));
29. SELECT fname,minit,lname FROM employee WHERE ssn IN (SELECT essn FROM works\_on WHERE pno IN (SELECT pnumber FROM project WHERE plocation='Chennai'));
30. SELECT fname,minit,lname FROM employee WHERE ssn NOT IN (SELECT essn FROM works\_on);
31. SELECT pname,SUM(hours) FROM project,works\_on WHERE (pno=pnumber) GROUP BY pno;

32. SELECT fname,minit,lname FROM employee WHERE ssn IN (SELECT essn FROM works\_on WHERE pno IN (SELECT pnumber FROM project WHERE plocation='Chennai' AND dnum IN (SELECT dnumber FROM dept\_locations WHERE dlocation!='Chennai'))));
33. SELECT fname,minit,lname FROM employee WHERE ssn IN(SELECT essn FROM works\_on WHERE pno IN(SELECT pnumber FROM project WHERE dnum=10));
34. SELECT ssn,fname,minit,lname FROM employee WHERE ssn=(SELECT DISTINCT E.super\_ssn FROM employee E WHERE E.super\_ssn=(SELECT D.super\_ssn FROM employee D GROUP BY D.super\_ssn ORDER BY COUNT(D.ssn) DESC LIMIT 1));
- 35.
36. SELECT E.name,E.mini,t,E.lname FROM employee E,employee M,department D WHERE E.salary>M.salary and D.mgr\_ssn=M.ssn and E.dno=D.dnumber;
37. SELECT fname,minit,lname FROM employee E WHERE(((dno=(SELECT dnumber FROM department WHERE dname='Research')) OR (super\_ssn IN (SELECT ssn FROM employee E1 WHERE ((E1.ssn=E.super\_ssn) AND (dno=(SELECT dnumber FROM department WHERE dname='Research'))))));
38. (SELECT fname,minit,lname FROM employee WHERE ssn IN (SELECT E.ssn FROM employee E WHERE E.dno IN (SELECT dnumber FROM department WHERE dname='Research')) UNION (SELECT fname,minit,lname FROM employee WHERE ssn IN (SELECT E.super\_ssn FROM employee E where

E.ssn IN (SELECT D.ssn FROM employee D WHERE D.dno IN (SELECT dnumber FROM department WHERE dname='Research'))));

39. SELECT fname,minit,lname FROM employee WHERE bdate LIKE"\_\_5\_ - \_\_ - \_\_";

40. SELECT fname,minit,lname FROM employee WHERE ssno IN (SELECT essno FROM works\_on WHERE ((hours>10) AND pno=(SELECT pnumber FROM project WHERE pname='ProductX'))));

41. SELECT COUNT(DISTINCT salary) FROM employee;

42.

43. SELECT fname,minit,lname FROM employee WHERE ssno IN(SELECT essno FROM works\_on WHERE pno IN (SELECT pno FROM works\_on WHERE essno=(SELECT ssno FROM employee WHERE (fname='John' AND lname='Smith'))));

44. (SELECT pnumber FROM project,department,employee WHERE dno=dnumber AND mgr\_ssno=ssno AND lname='Smith') UNION (SELECT pnumber FROM project,works\_on, employee WHERE pnumber=pno AND essno=ssno AND lname= 'Smith');

45. SELECT pnumber,dno,lname,bdate,address FROM ((project JOIN department ON dno=dnumber) JOIN employee ON mgr\_ssno=ssno) WHERE plocation='Chennai';